



Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

SUCCESS STORY

CAPTAIN BARRY CROKER WINS AIAA STUDENT PAPER COMPETITION



AFRL's Captain Barry Croker won the 1st annual international Computational Fluid Dynamics (CFD) Student Paper Competition. The 17th annual American Institute of Aeronautics and Astronautics (AIAA) CFD Conference was the site of the competition. Capt Croker earned this honor for the technical merit of his paper, the impact and relevance of his work, and the quality of a 30-minute oral presentation he delivered to present his findings.



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Air Vehicles
Awards and Recognition

Accomplishment

Capt Croker's paper, entitled "Development of a High-Order Shock Capturing Algorithm Using Compact Differencing" earned top marks in the AIAA CFD Student Paper Competition, held at the CFD Conference in Toronto, Canada. Capt Croker's paper discusses his research on more accurate, higher-order methods for numerically solving the governing equations of fluid flow. Current methods for obtaining higher-order results require expensive computational limiters or filters across flow discontinuities, such as shock waves. Capt Croker investigated a hybrid of two existing methods. Without using limiters and without losing any accuracy over conventional methods, his method led to the solution of a problem that had a discontinuity. Capt Croker completed this work concurrent to earning a Master of Science Degree in Aeronautical Engineering from the Air Force Institute of Technology and completing his follow-on assignment at AFRL.

Background

The AIAA has been the premiere society for aerospace engineers and scientists for over 70 years. It is the world's largest professional society dedicated to engineering and science progress for aviation, space, and defense. The AIAA CFD Conference addresses CFD in relation to aerospace sciences.

CFD refers to the use of advanced numerical techniques and powerful computers to solve the mathematical equations that govern phenomena such as airflow over an aircraft. It provides a means to visualize, analyze, and understand air vehicle designs and their performance prior to production. The outcome is a reduction in the time and money required to produce the final product.

Additional Information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (VA-S-05-27)

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